

In Re Application of:)
)
Kendra Gallup, et al.)
)
Serial No.: 10/665,680) Group Art Unit: 2883
)
Filed: September 19, 2003) Examiner: Dinh D. Chiem
)
For: OPTICAL DEVICE)
PACKAGE WITH TURNING) Atty Dkt. 10030768-1
MIRROR AND ALIGNMENT)
POST)

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This brief contains items under the following headings as required by 37 CFR §41.37 and MPEP §1206:

- (1) Real Party In Interest
- (2) Related Appeals, Interferences and Judicial Proceedings
- (3) Status of Claims
- (4) Status of Amendments
- (5) Summary of Claimed Subject Matter
- (6) Grounds of Rejection to be Reviewed on Appeal
- (7) Argument
- (8) Claims Appendix
- (9) Evidence Appendix
- (10) Related Proceedings Appendix

(1) REAL PARTY IN INTEREST

The real party in interest in the above-referenced patent application is Avago Technologies Fiber IP (Singapore) Pte. Ltd., having an address at No. 1 Yishun Avenue 7, Singapore 768923

(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences currently known to appellants, appellants' legal representatives or the assignee, which will directly affect, or be directly affected by, or have a bearing on, the Board's decision.

(3) STATUS OF CLAIMS

Claims 1-20 were filed with the application. Claims 1-20 are currently pending in the application, all of which stand rejected. The rejection of claims 1-20 is appealed.

(4) STATUS OF AMENDMENTS

No amendments were filed or entered subsequently to the final Office action mailed October 19, 2006.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' invention as independently claimed is summarized and explained below with reference numerals, specification page numbers and drawing figure numbers indicating where the claim finds support in the specification and drawings.

The device (100) of claim 1 includes a sub-mount (120) that contains conductive traces (340) exposed at a first surface of the sub-mount (120). [Figure 1; page 4, paragraph 22 and page 5, paragraph 23; Figure 3; page 7, paragraph 37]. The device (100) also includes a die (110) mounted on the sub-mount (120) and contains an edge-emitting laser (110) that is electrically coupled (115 and 122) to the conductive traces (340). [Figure 1; page 4, paragraph 22 and page 5, paragraph 23; Figure 3; page 7, paragraph 37]. The device (100) also includes a reflector (150) positioned to reflect an optical signal from the edge-emitting laser (110) through the first surface and through the sub-mount (120). [Figure 1; page 4, paragraph 22 and page 5, paragraphs 23 and 26].

The process (100) of claim 11 includes mounting a die (110) containing a laser (110) on a surface of a sub-mount (120), electrically connecting the laser (110) to electrical traces in the sub-mount (120), and attaching a reflector (150) to the sub-mount (120) in a position such that an optical signal from the laser (110)

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is reflected through the sub-mount (120). [Figure 1; page 4,
paragraph 22 and page 5, paragraphs 23 and 26].

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Claims 1, 3-10, 12-14, 17, 18 and 20 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Pat. App. Pub. No. 2004/0190836 (Kilian).
- B. Claims 2, 11 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kilian in view of U.S. Patent No. 5,195,156 (Freeman).
- C. Claims 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kilian in view of U.S. Patent No. 5,822,352 (Mizutani).

(7) ARGUMENT

Argument re Issue A

Claims 1, 3-10, 12-14, 17, 18 and 20 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Pat. App. Pub. No. 2004/0190836 (Kilian). Appellants respectfully assert, for at least the reasons advanced below, that claims 1, 3-10, 12-14, 17, 18 and 20 are not anticipated by U.S. Pat. App. Pub. No. 2004/0190836 (Kilian).

Claim 1

Claim 1 recites the following:

A device comprising:

a sub-mount containing conductive traces exposed at a first surface of the sub-mount;

a die mounted on the sub-mount and containing an edge-emitting laser that is electrically coupled to the conductive traces;
and

a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount.

Independent claim 1 distinguishes over Kilian at least by reciting, " a sub-mount containing conductive traces exposed at a first surface of the sub-mount; ... and a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount." Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

In regard to trace on a sub-mount, the Final Office Action cites paragraph [0026] of Kilian. Paragraph [0026] states, "Bond wires or other electrical connections may be provided to connect the light emitting device 30 and monitor diode 32 to metallization contacts. Hermetically sealed feed-through connections 46 may be used to couple the metallization within the recess 28 to electrical contacts on the outside of the package." Fig. 1 of Kilian shows device 30 is mounted on a cap 22 in which connections 46 reside. Fig. 1 also clearly shows that light from device 30 reflects from cap 22 and passes through a plate 24. Accordingly, connections 46 are at the surface of cap 22, not a surface of the plate 24 through which an optical signal passes.

In accordance with an aspect of the claimed invention, a sub-mount can be fabricated to implement both electrical and optical functions, e.g., provide electrical connections and an optical path. Kilian fails to disclose or suggest such a structure in

which an optical signal passes through a surface at which traces are exposed. Accordingly, claim 1 is patentable over Kilian.

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 1 is improper and should, therefore, be overruled.

Claim 3

Claim 3 recites the following:

The device of claim 1, further comprising a lens in the path of the optical signal.

Claim 3 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Claim 3 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 3 stands or falls with claim 1.

Claim 4

Claim 4 recites the following:

The device of claim 3, wherein the lens is integrated in the sub-mount along the path of the optical signal.

Claim 4 is dependent on claim 3 and therefore includes all limitations of Claims 1 and 3.

Claim 4 is allowable at least as depending from allowable base claim 1 and claim 3. For purposes of this appeal, claim 4 stands or falls with claims 1 and 3.

Claim 5

Claim 5 recites the following:

The device of claim 3, wherein the lens comprises a diffractive optical element.

Claim 5 is dependent on claim 3 and therefore includes all limitations of claims 1 and 3.

Claim 5 is allowable at least as depending from allowable base claim 1 and claim 3. For purposes of this appeal, claim 5 stands or falls with claims 1 and 3.

Claim 6

Claim 6 recites the following:

The device of claim 1, wherein the reflector comprises a portion of an inner wall of a cavity in a cap overlying the die.

Claim 6 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Claim 6 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 6 stands or falls with claim 1.

Claim 7

Claim 7 recites the following:

The device of claim 6, wherein the cap attaches to the sub-mount to hermetically seal the die in the cavity.

Claim 7 is dependent on claim 6 and therefore includes all limitations of claims 1 and 6.

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Claim 7 is allowable at least as depending from allowable base claim 1 and claim 6. For purposes of this appeal, claim 7 stands or falls with claims 1 and 6.

Claim 8

Claim 8 recites the following:

The device of claim 1, further comprising a transparent encapsulant attached to the sub-mount and encasing the die.

Claim 8 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Claim 8 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 8 stands or falls with claim 1.

Claim 9

Claim 9 recites the following:

The device of claim 8, wherein the encapsulant comprises silicone.

Claim 9 is dependent on claim 8 and therefore includes all limitations of claims 1 and 8.

Claim 9 is allowable at least as depending from allowable base claim 1 and claim 8. For purposes of this appeal, claim 9 stands or falls with claims 1 and 8.

Claim 18

Claim 18 recites the following:

The device of claim 1, wherein the die is mounted on the first surface of the sub-mount.

Claim 18 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Claim 18 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 18 stands or falls with claim 1.

Claim 20

Claim 20 recites the following:

The device of claim 1, wherein the first surface is substantially planar.

Claim 20 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Claim 20 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 20 stands or falls with claim 1.

Claim 10

Claim 10 recites the following:

A process comprising:

mounting a die containing a laser on a surface of a sub-mount;

electrically connecting the laser to electrical traces in the sub-mount; and

attaching a reflector to the sub-mount in a position such that an optical signal from the laser is reflected through the sub-mount.

Independent claim 10 distinguishes over Kilian by reciting, "mounting a die containing a laser on a surface of a sub-mount; electrically connecting the laser to electrical traces in the sub-mount; and attaching a reflector to the sub-mount in a position such that an optical signal from the laser is reflected through the sub-mount." Kilian discloses attaching light emitting device 30 to a cap 22 containing electrical connections 46. To the extent that cap 22 is considered a sub-mount, Kilian reflects the optical signal away from the cap 22 into and through a plate 24 that provides no electrical connections. Accordingly, claim 10 is clearly patentable over Kilian.

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 10 is improper and should, therefore, be overruled.

Claim 12

Claim 12 recites the following:

The process of claim 10, further comprising encapsulating the laser in a transparent material that protects the laser.

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Claim 12 is dependent on Claim 10 and therefore includes all limitations of Claim 10.

Claim 12 is allowable at least as depending from allowable base claim 10. For purposes of this appeal, claim 12 stands or falls with claim 1.

Claim 13

Claim 13 recites the following:

The process of claim 12, wherein the transparent material comprises silicone.

Claim 13 is dependent on claim 12 and therefore includes all limitations of claims 10 and 12.

Claim 13 is allowable at least as depending from allowable base claim 10 and claim 12. For purposes of this appeal, claim 13 stands or falls with claims 10 and 12.

Claim 14

Claim 14 recites the following:

The process of claim 10, wherein the laser is an edge-emitting laser.

Claim 14 is dependent on Claim 10 and therefore includes all limitations of Claim 10.

Claim 14 is allowable at least as depending from allowable base claim 10. For purposes of this appeal, claim 14 stands or falls with claim 1.

Claim 17

Claim 17 recites the following:

The process of claim 10, wherein the reflector reflects the optical signal through the surface on which the die is mounted.

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Claim 17 is dependent on Claim 10 and therefore includes all limitations of Claim 10.

Claim 17 is allowable at least as depending from allowable base claim 10. For purposes of this appeal, claim 17 stands or falls with claim 1.

Argument re Issue B

Claims 2, 11 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kilian in view of U.S. Patent No. 5,195,156 (Freeman). Appellants respectfully assert, for at least the reasons advanced below, that claims 2, 11 and 19 are not unpatentable over Kilian in view of U.S. Patent No. 5,195,156 (Freeman).

Claim 2

Claim 2 recites the following:

The device of claim 1, further comprising an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

Claim 2 is dependent on Claim 1 and therefore includes all limitations of Claim 1.

Appellants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness because there is no suggestion to combine the reference teachings as proposed by the Examiner. There must be some suggestion or motivation,

either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP §706.02(j).

The Examiner states the following on pages 3 and 4 of the final rejection regarding the instant rejection:

Kilian discloses a device comprising: a sub-mount containing conductive traces exposed [0026] at a first surface of the sub-mount; a die 30 mounted on the sub-mount and containing an edge-emitting laser 30 that is electrically coupled to the conductive traces; and a reflector 40 positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount 24. However, Kilian does not teach an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

The Examiner, thus, admits that the primary reference, Kilian et al., fails to disclose or suggest "an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount" as recited in appellants' claim 3, but takes the position, that this limitation would be obvious in view of the Freeman reference. Appellants respectfully assert that the Examiner's position is improper because there is no motivation to combine the Kilian and Freeman references as proposed by the Examiner.

The Examiner has provided no basis for a teaching or suggestion in the prior art for combining elements as proposed in

the final rejection. The Examiner's argument regarding obviousness is as follows:

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide *an alignment method such as the alignment posts taught by Freeman et al.* such that the invented optical device may allow light to be coupled into the device or perhaps made available for light to be coupled out such that the signal maybe transmitted out.

(final rejection, page 4, emphasis added)

The language italicized above represents the Examiner's only explanation regarding a teaching or suggestion to combine. This language, however, is simply an *unsupported statement* made by the Examiner. In order to establish a *prima facie* case, a teaching or suggestion to combine must be found *in the prior art*:

It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the elements.

Arkie Lures, Inc. v. Gene Larew Tackle, Inc., 119 F.3d 953, 957, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997).

The Examiner has not referred to any prior art in support of his position that a motivation or suggestion to combine exists but, instead, apparently expects his unsupported conclusory statement to suffice. Such an unsupported statement, however, cannot constitute the evidence required to establish existence of a motivation or suggestion to combine:

Whether the Board relies on an express or an implicit showing [of a motivation, suggestion or teaching to modify the teachings of a reference], it must provide particular findings related thereto.... Broad conclusory statements standing alone are not "evidence".

In re Kotzab, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (citing *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999))

Accordingly, the Examiner's statement does not constitute a showing of a teaching or suggestion to combine. At the very least, an Examiner must prove that some motivation or suggestion to combine can be found in knowledge generally available to one of ordinary skill in the art (see, MPEP 706.02(j) reproduced previously). In the present case, however, the Examiner provides no evidence that the requisite knowledge is generally available but, instead, attempts to rely on personal opinion. Such personal opinion does not represent an adequate substitute for evidence.

In short, it appears that the Examiner's proposed combination of Kilian et al. and Freeman et al. is based solely on hindsight

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derived from appellants' specification. The use of hindsight in this manner is clearly prohibited by the relevant case law:

Obviousness can not be established by hindsight combination to produce the claimed invention. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). As discussed in *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985), it is the prior art itself, and not the applicant's achievement, that must establish the obviousness of the combination.

In re Dance, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998)

Obviousness may not be established using hindsight. See *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Kahn v. General Motors Corp., 45 USPQ2d 1608, 1613 (Fed. Cir. 1998)

In addition, Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 2 is improper and should, therefore, be overruled.

Claim 11

Claim 11 recites the following:

The process of claim 10, further comprising attaching an alignment post to the sub-mount where the optical signal emerges.

Claim 11 is dependent on Claim 10 and therefore includes all limitations of Claim 1.

The Examiner states the following on pages 3 and 4 of the final rejection regarding the instant rejection:

Kilian discloses a device comprising: a sub-mount containing conductive traces exposed [0026] at a first surface of the sub-mount; a die 30 mounted on the sub-mount and containing an edge-emitting laser 30 that is electrically coupled to the conductive traces; and a reflector 40 positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount 24. However, Kilian does not teach an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

The Examiner, thus, admits that the primary reference, Kilian et al., fails to disclose or suggest "an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount" as recited in appellants' claim 11, but takes the position, that this

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limitation would be obvious in view of the Freeman reference. Appellants respectfully assert that the Examiner's position is improper because there is no motivation to combine the Kilian and Freeman references as proposed by the Examiner.

The Examiner has provided no basis for a teaching or suggestion in the prior art for combining elements as proposed in the final rejection. The Examiner's argument regarding obviousness is as follows:

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide *an alignment method such as the alignment posts taught by Freeman et al.* such that the invented optical device may allow light to be coupled into the device or perhaps made available for light to be coupled out such that the signal maybe transmitted out.

(final rejection, page 4, emphasis added)

The language italicized above represents the Examiner's only explanation regarding a teaching or suggestion to combine. This language, however, is simply an *unsupported statement* made by the Examiner.

In addition, Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 11 is improper and should, therefore, be overruled.

Claim 19

Claim 19 recites the following:

The device of claim 18, further comprising an alignment post attached to a second surface of the sub-mount where the optical signal emerges from the sub-mount.

Claim 19 is dependent on Claim 18 and therefore includes all limitations of Claim 18.

The Examiner states the following on pages 3 and 4 of the final rejection regarding the instant rejection:

Kilian discloses a device comprising: a sub-mount containing conductive traces exposed [0026] at a first surface of the sub-mount; a die 30 mounted on the sub-mount and containing an edge-emitting laser 30 that is electrically coupled to the conductive traces; and a reflector 40 positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount 24. However, Kilian does not teach an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

The Examiner, thus, admits that the primary reference, Kilian et al., fails to disclose or suggest "an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount" as recited in appellants' claim 19, but takes the position, that this limitation would be obvious in view of the Freeman reference. Appellants respectfully assert that the Examiner's position is improper because there is no motivation to combine the Kilian and Freeman references as proposed by the Examiner.

The Examiner has provided no basis for a teaching or suggestion in the prior art for combining elements as proposed in the final rejection. The Examiner's argument regarding obviousness is as follows:

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide *an alignment method such as the alignment posts taught by Freeman et al.* such that the invented optical device may allow light to be coupled into the device or perhaps made available for light to be coupled out such that the signal maybe transmitted out.

(final rejection, page 4, emphasis added)

The language italicized above represents the Examiner's only explanation regarding a teaching or suggestion to combine. This language, however, is simply an *unsupported statement* made by the Examiner.

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In addition, Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a submount are exposed.

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 19 is improper and should, therefore, be overruled.

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Argument re Issue C

Claims 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kilian in view of U.S. Patent No. 5,822,352 (Mizutani). Appellants respectfully assert, for at least the reasons advanced below, that claims 15 and 16 are not unpatentable over Kilian in view of U.S. Patent No. 5,822,352 (Mizutani).

Claim 15

Claim 15 recites the following:

The process of claim 10, wherein electrically connecting the laser comprises connecting a plurality of lasers to a sub-mount wafer that includes the submount.

Claim 15 is dependent on Claim 10 and therefore includes all limitations of Claim 10.

Appellants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness because there is no suggestion to combine the reference teachings as proposed by the Examiner. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available

to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP §706.02(j).

The Examiner states the following on pages 4 and 5 of the final rejection regarding the instant rejection:

In teaching the apparatus, Kilian also teaches the process limitations of electrically connecting a laser to a sub-mount and attaching a reflector such that the optical signal is reflected through the sub-mount. However, Kilian does not expressly teach electrically connecting the laser comprises connecting a plurality of lasers to a sub-mount wafer that includes the sub-mount and furthermore, cutting the sub-mount wafer to separate sub-mount from similar sub-mounts.

The Examiner, thus, admits that the primary reference, Kilian et al., fails to disclose or suggest "connecting a plurality of lasers to a sub-mount wafer that includes the sub-mount" as recited in appellants' claim 15, but takes the position, that this limitation would be obvious in view of the Mizutani reference. Appellants respectfully assert that the Examiner's position is improper because there is no motivation to combine the Kilian and Mizutani references as proposed by the Examiner.

The Examiner has provided no basis for a teaching or suggestion in the prior art for combining elements as proposed in the final rejection. The Examiner's argument regarding obviousness is as follows:

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to *apply the method used to produce semiconductors, crystal growth on the same wafer, for making of an optoelectronic device* since the material used are semiconductor material and have the same characteristics of semiconductor components.

(final rejection, page 5, emphasis added)

The language italicized above represents the Examiner's only explanation regarding a teaching or suggestion to combine. This language, however, is simply an *unsupported statement* made by the Examiner. In order to establish a *prima facie* case, a teaching or suggestion to combine must be found *in the prior art*.

It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the elements.

Arkie Lures, Inc. v. Gene Larew Tackle, Inc., 119 F.3d 953, 957, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997).

The Examiner has not referred to any prior art in support of his position that a motivation or suggestion to combine exists but, instead, apparently expects his unsupported conclusory statement to suffice. Such an unsupported statement, however, cannot constitute the evidence required to establish existence of a motivation or suggestion to combine:

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Whether the Board relies on an express or an implicit showing [of a motivation, suggestion or teaching to modify the teachings of a reference], it must provide particular findings related thereto.... Broad conclusory statements standing alone are not "evidence".

In re Kotzab, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (citing *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999))

Accordingly, the Examiner's statement does not constitute a showing of a teaching or suggestion to combine. At the very least, an Examiner must prove that some motivation or suggestion to combine can be found in knowledge generally available to one of ordinary skill in the art (see, MPEP 706.02(j) reproduced previously). In the present case, however, the Examiner provides no evidence that the requisite knowledge is generally available but, instead, attempts to rely on personal opinion. Such personal opinion does not represent an adequate substitute for evidence.

In short, it appears that the Examiner's proposed combination of Kilian et al. and Mizutani et al. is based solely on hindsight derived from appellants' specification. The use of hindsight in this manner is clearly prohibited by the relevant case law:

Obviousness can not be established by hindsight combination to produce the claimed invention. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). As discussed in *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985), it is the

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prior art itself, and not the applicant's achievement, that must establish the obviousness of the combination.

In re Dance, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998)

Obviousness may not be established using hindsight. See *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Kahn v. General Motors Corp., 45 USPQ2d 1608, 1613 (Fed. Cir. 1998)

For the reasons advanced above, appellants respectfully assert that the current rejection of claim 15 is improper and should, therefore, be overruled.

Claim 16

Claim 16 recites the following:

The process of claim 15, further comprising cutting the sub-mount wafer to separate the sub-mount from similar sub-mounts.

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Claim 16 is dependent on Claim 15 and therefore includes all limitations of Claim 15.

Claim 16 is allowable at least as depending from allowable base claim 15. For purposes of this appeal, claim 16 stands or falls with claim 15.

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For the reasons set forth above, appellants respectfully assert that claims 1-20 are allowable and that, accordingly, the rejection of claims 1-20 should be reversed.

Respectfully submitted,
KLAAS, LAW, O'MEARA & MALKIN, P.C.

June 4, 2007

/John Pessetto/

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(8) CLAIMS APPENDIX

1. A device comprising:

a sub-mount containing conductive traces exposed at a first surface of the sub-mount;

a die mounted on the sub-mount and containing an edge-emitting laser that is electrically coupled to the conductive traces;
and

a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount.

2. The device of claim 1, further comprising an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

3. The device of claim 1, further comprising a lens in the path of the optical signal.

4. The device of claim 3, wherein the lens is integrated in the sub-mount along the path of the optical signal.

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5. The device of claim 3, wherein the lens comprises a diffractive optical element.
6. The device of claim 1, wherein the reflector comprises a portion of an inner wall of a cavity in a cap overlying the die.
7. The device of claim 6, wherein the cap attaches to the sub-mount to hermetically seal the die in the cavity.
8. The device of claim 1, further comprising a transparent encapsulant attached to the sub-mount and encasing the die.
9. The device of claim 8, wherein the encapsulant comprises silicone.

10. A process comprising:
mounting a die containing a laser on a surface of a sub-mount;
electrically connecting the laser to electrical traces in the sub-mount; and
attaching a reflector to the sub-mount in a position such that an optical signal from the laser is reflected through the sub-mount.

11. The process of claim 10, further comprising attaching an alignment post to the sub-mount where the optical signal emerges.

12. The process of claim 10, further comprising encapsulating the laser in a transparent material that protects the laser.

13. The process of claim 12, wherein the transparent material comprises silicone.

14. The process of claim 10, wherein the laser is an edge-emitting laser.

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15. The process of claim 10, wherein electrically connecting the laser comprises connecting a plurality of lasers to a sub-mount wafer that includes the sub-mount.

16. The process of claim 15, further comprising cutting the sub-mount wafer to separate the sub-mount from similar sub-mounts.

17. The process of claim 10, wherein the reflector reflects the optical signal through the surface on which the die is mounted.

18. The device of claim 1, wherein the die is mounted on the first surface of the sub-mount.

19. The device of claim 18, further comprising an alignment post attached to a second surface of the sub-mount where the optical signal emerges from the sub-mount.

20. The device of claim 1, wherein the first surface is substantially planar.

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(9) EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131 or 1.132 or entered by or relied upon by the Examiner is being submitted.

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(10) RELATED PROCEEDINGS AND INTERFERENCES

APPENDIX

No related proceedings are referenced in (2) above.
Accordingly, no copies of decisions in related proceedings are
provided.